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ABSTRACT

Within the context of the major objectives of developing, field testing, and refining the curriculum materials described in volume 1 of this final report (CE 024 117), Volume 2 describes and critiques the management system used by Project HIRE in that development process. (See Note for availability of curriculum materials.) Chapter 1 introduces the standards/strategies paradigm (management model), based on a product development orientation philosophy. Figures outline the nine standards and strategies leading to the development of a product, service, or other outcome. Each of the other four chapters is concerned with one or more of these standards/strategies. The general format for each chapter is (1) introduction, and background, (2) procedures, (3) research methods (if appropriate), and (4) evaluation and discussion. Chapter 2 is concerned with teacher motivation and administrator involvement. Emphasis is on the conducting and results of a pilot study to determine the relationship between incentives and teacher participation and change orientation. The teacher opinion survey and change orientation scale are provided. Chapter 3 discusses material design based on learning theory and research findings. The two standards/strategies considered in chapter 4 are content selection and validation. Survey instruments to determine terminology usage and employer perception of job-entry relatedness are given. Chapter 5 focuses on an interdisciplinary curriculum development approach and university management and coordination. (YLB)

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PRACTICAL APPROACHES TO CURRICULUM DEVELOPMENT

A Management Handbook

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CE 024 118

Project HIRE: A Curriculum Management System for Instructing the Handicapped, USOE Project No. 498AH70309, Grant No. G007701947

FINAL REPORT
Volume 2

Boston University School of Education
Department of Business and Career Education
June, 1979

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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TABLE OF CONTENTS

Chapter		Page
	Acknowledgements	iv
	Preface	v
I.	Introduction to HIRE'S Management Approach	1
	The Management System in Perspective	1
	Overview	3
	Definition of Terms	4
	References for Chapter 1	11
II.	What Motivates Teachers to Participate?	12
	Background	12
	Standards/Strategies	13
	Procedures	14
	Pilot Study	16
	Teacher Opinion Survey	17
	Summary of Findings on Preferred Incentive Ratings	20
	Change Orientation Scale	21
	Vocational/Career Education for the Handicapped Survey	24
	Preferred Incentives of Innovative Teachers	28
	Discussion	29
	References for Chapter 2	33
III.	Learning Principles: An Eclectic Model	34
	Background	34
	Standards/Strategies	35
	References for Chapter 3	38
IV.	Developing Entry-Level Vocabulary	39
	Background	39
	Standards/Strategies	40
	Procedures	40
	Evaluation and Discussion	41
	Validation of Topical Areas and Word Lists	41
	Professional Ratings of Vocabulary Coverage	42
	Validation of Terminology Usage and Entry-Level Categorization	43
	Entry-Level Job Vocabulary Survey	46
	Usage Survey	51
V.	University Support System: Interdisciplinary Teams as a Framework for Change	53
	Background	53
	Standards/Strategies	55
	Procedures	55
	Evaluation and Discussion	56
	References for Chapter 5	58

LIST OF TABLES

Table		Page
1.	Preferred Incentives Scales	19
2.	Change Orientation Scale	23
3.	Means and Standard Deviations by Teacher Subject Area on Change Orientation Scale	27

LIST OF FIGURES

Figure		Page
1.	HIRE Standard/Strategy Model	8
2.	Standards/Strategies Paradigm	9
3.	HIRE Eclectic Change Model	54

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We express thanks to Dr. Sue Allen Warren for her helpful suggestions in the development of the standards/strategies paradigm discussed herein as well as for her continuing support and suggestions throughout the many arduous hours required in the development of the final products of Project HIRE.

We are deeply indebted to all the teachers, administrators, and other professionals who participated. Their names are contained in Volume 1 of this report.

D.C.G. and G.J.B.

PREFACE

The major objective of Project HIRE, "A curriculum management system for instructing the handicapped," was to:

> Design, develop, field-test, and refine curriculum and instructional materials for use in the resource room to support vocational instruction received by handicapped students who are integrated into regular vocational training programs in the four regional schools collaborating on this project.

As reported in Volume 1 of the final report of the project, the major efforts, in terms of funds and professional time expended by the project personnel, were on the actual development and field testing of materials. In fact, the project went beyond the parameters established in the original proposal by producing 15 modules instead of 12, five teachers' manuals instead of four, and adding an additional topical area. In addition, Project HIRE was concerned with meeting the two objectives listed below:

1. To develop and test new strategies for utilizing teams of vocational education and special education personnel, supported by university specialists, in the planning, development, and testing of curriculum and instructional materials for use by handicapped students in resource rooms.

2. To design, develop, and test new standards (strategies established by teams as part of the objective above) for developing quality curriculum materials for use by handicapped students who are enrolled in regular vocational programs.

In effect, these objectives form a standards/strategies paradigm established a priori by the nature of the project's management system contained in the original request for funding.

The ultimate test of whether this standards/strategies paradigm approach was successful revolves around the question of whether the products of the project are high quality effective materials. Thus the major efforts were placed on the practical aspects of "getting the job done."

In meeting the two objectives concerned with standards/strategies, it was determined in the early months of the project that only a practical approach to this aspect of the project was workable. Thus, the emphasis in meeting these two standards/strategies objectives was placed on describing the team management process against the ultimate test of producing high quality materials. We feel that the curriculum products of this project more than meet this criterion.

Initially, the two objectives were to be treated separately. However, it soon became obvious in examining the actual standards/strategies being employed to meet the objective of producing the materials, that a standards/strategies paradigm was the most effective way to organize the description of the process employed. Moreover, it soon became evident that the production of the initially proposed "brochures" describing this process would be inadequate. Thus the present method of reporting the outcomes of the standards/strategies paradigm was devised. This document, Volume 2 of the Final Report of Project HIRE, is designed to serve two purposes. First, it reports the activities and findings concerned with the actual

curriculum management system employed by the project; and secondly, it replaces the initially proposed pair of brochures to describe the standards/strategies paradigm.

D.C.G.
G.J.B.

CHAPTER 1

INTRODUCTION TO HIRE'S MANAGEMENT APPROACH

The Management System in Perspective

Over the past decade there have been some profound changes in the way special education and vocational education personnel approach the preparation and training of handicapped students for the world of work. These changes have been the result of the work of many parents, philosophers, employers, advocates, humanists, pragmatists, clients, legislators, judges, and other interested parties. The sum total of the changes may be summarized in the phrase "normalization of the handicapped." The intent of all those concerned with the welfare, growth, and development of physically and learning handicapped persons is to increase the probability that a handicapped individual can lead a "normal life" consonant with his or her abilities and interests.*

It is obvious to all of us concerned that

> . . . current trends, triggered by a variety of social forces, suggest that many, if not most, handicapped children will no longer remain segregated in special classes. Instead they will attend school in regular classrooms. (Brenton, 1977, p. 255)

The implications of the trends and legislation concerning the handicapped for vocational education are readily discernible in recent funding emphases. Many projects are concerned with how to

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*For an exceptionally lucid discussion of the normalization principle, the authors recommend a paper presented at the Sixth Annual International Symposium on Mental Retardation, University of Vienna, Vienna, Austria, March, 1973, by Dr. Sue Allen Warren.

better train handicapped students in the context of a "mainstreamed" program.

The curriculum management system of Project HIRE is a reflection of the authors' response to this incredibly complex problem. Since educational problems are not univariate but multivariate in nature, there is no simple way to accomplish this goal. Thus, this project attempted only to focus on one part of the complex problem of mainstreaming, that is, curriculum modification. Secondly, within the context of focusing on the pragmatic problem of modifying the curriculum to teach technical language to mainstream handicapped students, Project HIRE attempted to record and document the a priori management standards/strategies used in planning the Project.

Moreover, Project HIRE's team management plan for the development of curriculum materials for the handicapped in vocational education evolved from an earlier pioneering curriculum development project for vocational education directed by the senior author. The basic model for the HIRE materials came from this same project (see Gardner & Kurtz, 1979a, 1979b).

The curriculum management problem for Project HIRE was twofold: (1) How to improve on the curriculum model for teaching technical vocabulary established in the previous project; and (2) How to do a better management job of the curriculum development process.

Some of the responses to this twofold problem of standards and strategies came from experience in previous projects by the professional staff, others from the literature, and some from clinical hunches. According to Borgen and Davis (1971) there are three models or strategies under which most vocational curriculum development

projects can be categorized: (1) Tylerian models; (2) systems models, and (3) product development models. Project HIRE can be loosely categorized as product development oriented.

Within the context of a product development model, Project HIRE focused on developing curriculum products using interdisciplinary teams of teachers, administrators, and university specialists. Thus, the "team approach was the keystone of the management process. A description of the procedures used to develop these materials in the form of a standards/strategies paradigm, established a priori, constitutes the "management system" described in this volume.

Overview

This volume describes and critiques the management system used by Project HIRE to develop supplementary curriculum materials for use in resource rooms by special education personnel to assist learning handicapped students to master entry-level technical vocabulary in five trade areas. The project was product development oriented, using interdisciplinary teams of teachers, administrators and university personnel to solve practical problems. The standards/strategies paradigm used in this project for curriculum development was established a priori in the original grant proposal.

Within the context of the major objectives of developing, field testing, and refining the curriculum materials described in Volume 1 of this final report, Volume 2 documents the methods used to meet the following grant objectives:

1. To develop and test new strategies for utilizing teams of vocational education and special education personnel, supported by university specialists, in the planning,

development, and testing of curriculum and instructional materials for use by handicapped students in resource rooms.

2. To design, develop, and test new standards (strategies established by teams as part of the objective above) for developing quality curriculum materials for use by handicapped students enrolled in regular vocational programs.

Definition of Terms

Learning Handicapped Students. Students who have been determined to be in need of special education services by the school within the context of state and Federal regulations. These students can be classified as learning disabled or mildly mentally retarded and constitute the bulk of the sample in the project.

"New." Within the context of the project's objectives of testing new strategies/standards, the definition of the word "new" is from Webster's Seventh New Collegiate Dictionary: "beginning as the resumption or repetition of a previous act . . . refreshed or regenerated . . ." In other words, the standards/strategies in this project are new in the sense that they were a regeneration or refinement of previously attempted procedures for product development utilized in the project's predecessor (see Gardner & Kurtz, 1977).

Management. The definitions of "management" are probably endless. One of Webster's alternative definitions, "judicious use of means to accomplish an end," developed within the context of this project's objectives into our own definition of management for Project HIRE: "the steps we took to accomplish the goal of curriculum product development."

Curriculum. Even a cursory review of texts in curriculum theory and development reveals a plethora of definitions of "curriculum." Within the context of career and vocational curriculum development, Gardner and Warren (1978) point out that definitions range from a narrow one which defines curriculum in terms of materials and textbooks to a broad definition which includes every learning experience of the child. Gardner and Warren define curriculum in the context of career education for the handicapped as

> . . . any experiences which are planned by and implemented by the school to help children meet specific learning outcomes which have been deduced from the philosophy and goals for the school. Experiences do not have to take place in the classroom or on school property. (p. 113)

Curriculum Modification. Curriculum modification in this project refers to the experiences and materials developed and planned by the project to meet the goal of helping the participating learning handicapped students in the cooperating schools master the entry-level terminology of the five trade areas.

Standard. Definitions of the term "standard" range from "the personal flag of the head of state" to "the basis of value in a monetary system." For our purposes, standard refers to the gauge/yardstick that we used as a "model" or "guiding principle" in the curriculum development process of the project. These standards were established *a priori* as given assumptions we needed to make in order to produce quality curriculum products. For example, we decided *a priori* that one prerequisite to curriculum development in vocational education of the handicapped was the provision of appropriate incentives for participating teachers. In response to varying degrees of enthusiasm and cooperation from participating teachers,

all of whom were paid the same amount, this standard was studied in more depth to determine other incentives which could be used in the future.

Strategy. The term "strategy" is derived from the Greek word for "generalship" and in military jargon is concerned with the science and art of military command. An alternative definition of Webster's is a "careful plan." For project purposes, we defined strategy as the method or plan we used to meet the standards we established for this curriculum development project.

The Standards/Strategies Paradigm. The model described in this volume for developing supplemental curriculum materials for teaching technical vocabulary to learning handicapped students is derived from empirical findings of an earlier project (Gardner & Kurtz, 1979a, 1979b), from clinical hunches, and from the practical experience of all the personnel involved in planning and implementing the project. The model is based on a product development orientation philosophy. Much of this approach comes from the industrial management experience of the senior author, that is, goal-directed and product oriented experience.

The importance of goal-direction in management is exemplified by a multitude of works on "management by objectives" and by the extensive body of research conducted on level of aspiration by educators and psychologists over the past fifty years (e.g. Fryer, 1964). Moreover, there is considerable evidence that teachers prefer to work with management personnel in task oriented situations having tangible outcomes (Tanner & Tanner, 1975, p. 631).

The standards/strategies management model for this project is illustrated in Figure 1 on the next page. As portrayed in this figure, the project management team established nine "standards," making the assumption that each of these standards was a prerequisite to the development of quality products. For each of the standards, a strategy (or strategies) was formulated which would lead to the development of a product, service, or other outcome. Some of the standards, such as the implementation of a system to motivate teacher participants, were evaluated separately. Other standards were evaluated as part of the total package of "quality curriculum materials" which would assist handicapped students in mastering the entry-level vocabulary.

Figure 2, on pages 9 and 10, outlines the nine standards/strategies employed in the project as well as the outcomes/products expected to be generated by the process.

Plan of Volume 2

Except for the introductory chapter, each of the chapters in this volume will be concerned with at least one or more of the nine standards/strategies used in the development of the materials, as described in Figure 2. While each chapter will vary somewhat in format, with some being more technical than others, the general format will consist of the following:

1. Introduction and background
2. A description of what we did
3. Research methods (if appropriate)
4. Evaluation and discussion

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PROJECT HIRE

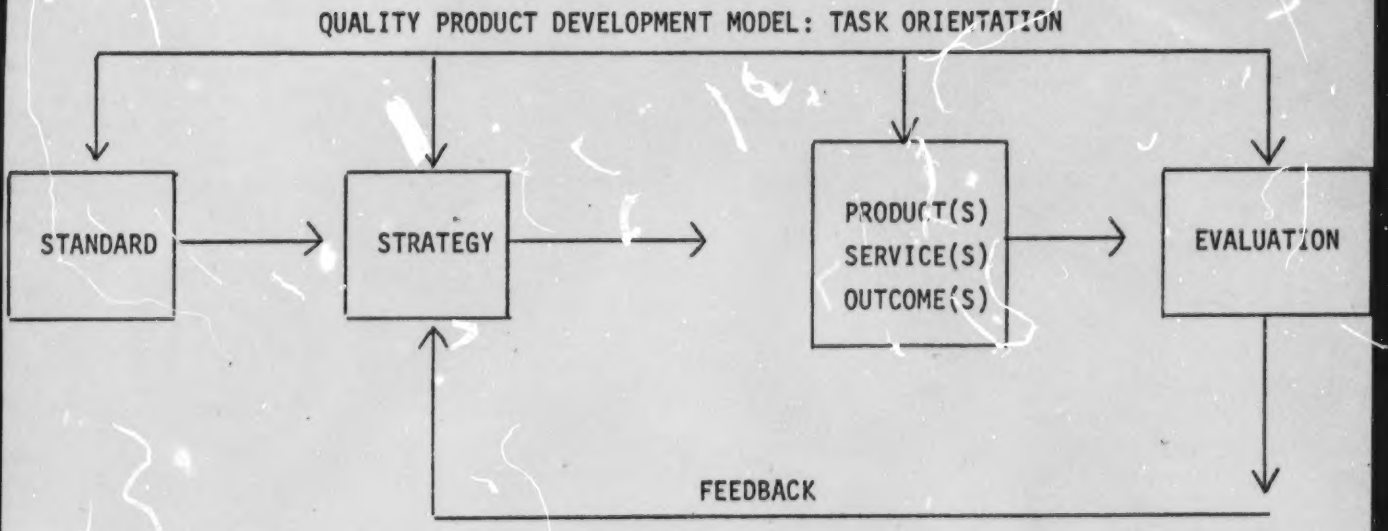

Figure 1: Standards/Strategy Paradigm

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STANDARD	STRATEGY	OUTCOME/PRODUCTS	CHAPTER
1. Implementation of a system to motivate teacher participants.	Provide a schedule of financial rewards, usable products and attribution for work.	Adherence to schedules, quality products produced.	2
2. Implementation of a system to involve key decision makers from schools.	Select an administrator to serve on each school team. Provide a schedule of financial rewards, usable products, for programs, public credit for program and attribution of administrator's work.	Adherence to schedules, relatively smooth process.	2
3. Use of learning theory and research findings as the basis for materials design.	University specialists analyze curriculum content, design basic teaching strategies and materials format in consultation with curriculum teams.	Field tested procedures and materials.	3
4. Selection of content to meet greatest need of students and job market.	Identification of job prospects for students related to trade area selected for development. Teacher identification of student's problem area.	List of terms related to trade areas with good or high employment potential. Job descriptions for teachers. Students with problems served.	
5. Content related to entry-level jobs and frequency of usage.	Employer validation of terms for usage and as entry-level. Professional evaluation of vocabulary coverage.	Validated list of terms.	4

Figure 2: Standards/Strategies Paradigm

Figure 2 (continued)

STANDARD	STRATEGY	OUTCOME/PRODUCTS	CHAPTER
6. Interdisciplinary curriculum development approach. Both special education/vocational education instructors provide input into curricular planning.	Small, in-school team approach.	Instructional materials for use in vocational support system (resource room or special sessions by regular teachers). Increased interdisciplinary cooperation.	5
7. University management and coordination of interdisciplinary teams in the curriculum development process.	Project activities coordinated by university staff; i.e. planning, evaluation, design and implementation, data analysis, final product writing, etc. Verified at school level.	Quarterly Reports Annual Report Final Report Product Evaluation Curriculum Products Dissemination	5
8. Professional evaluation of products.	University psychologist helps project management develop a practical formative/summative evaluation design.	Evaluation report.	6
9. Development of teachers' manuals which contain criterion referenced tests and measurable outcomes.	Construction of tests/behavioral outcomes by project management in consultation with project psychologist.	Teachers' manuals with criterion referenced tests and generic behavioral outcomes for each trade area.	6

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CHAPTER 2

What Motivates Teachers to Participate?

Background

As any practical manager in education, government or industry will tell you, the best planned organization chart for a project, unit, department or division is superfluous if the people in the slots are not cooperative or productive. In planning the management approach to Project HIRE, a number of assumptions were made about what would motivate the teachers to participate and how they would be selected. These assumptions were largely made on the basis of past experience with similar groups. Also decisions were limited by time and budget constraints of a product development oriented project.

The team approach had been tried in a previous project and seemed to be the most effective way to ensure content and design inputs from appropriate personnel. While the inputs and production rates of the teams in the previous project varied from school to school, we felt that Project HIRE's new set of incentives and selection process might improve cooperation. The selection process was determined by each school administrator in a very practical way. Each administrator was asked to pick two special education resource teachers and two teachers from a trade area to form a team. (This was not possible in all cases and consequently some teams were smaller.) Each administrator was also asked to try to pick "innovative" and hard working teachers.

Next, a set of incentives was presented in a low key fashion at the first meeting of the teams (and in some cases before the person agreed). Among the incentives were (1) an excellent financial stipend scheduled periodically at the completion of specific tasks, and (2) attribution of work performed.

The success of any project of this nature is dependent not only upon the goodwill, cooperation, and concern of the participating teachers, but also upon those same inputs from the administrators. Consequently, the same incentives were offered to the participating administrator on each team.

The basic motivational system for each team, then, consisted of three factors:

1. Small group work that was task oriented, based on empirical data that suggests that teachers value supervisors more in task-oriented situations. (Harris & Hargraves, 1972)
2. A $1500 stipend for each teacher or administrator, paid on a schedule related to major tasks completion.
3. Attribution of work. Teachers/administrators were given local public relations coverage and names are listed on documents produced by project where appropriate.

Chapter Standard/Strategy Model

This chapter is concerned with the following standard/strategies:

	Standard	Strategy	Outcomes/Products
1.	Implementation of a system to motivate teacher participants.	Provide a schedule of financial rewards, usable products, public relations credits and attribution of work.	Adherence to schedules; quality products produced.

	Standard	Strategy	Outcomes/Products
2.	Implementation of a system to involve key decision makers from schools.	Select an administrator to serve on each school team. Provide a schedule of financial rewards. usable products for programs, public relations credits for program and attribution of administrator's work.	Adherence to schedules; relatively smooth process.

Procedures

The ultimate evaluation criteria for this approach, of course, would be (1) the adoption of the products by other schools, and (2) the demonstration of effectiveness of the materials in meeting student learning outcomes.

The findings reported in Volume 1 of this report on materials evaluation suggest that the materials are indeed effective in helping learning handicapped students achieve technical terminology mastery. It is, of course, too early to know whether or not the materials will be adopted by other schools. One major problem has yet to be resolved. Who will publish them? The authors have been approached by several commercial publishers at conventions, and numerous professionals viewing the materials have indicated interest in purchasing them. From this evaluative standpoint, then, one can conclude that the motivational system apparently worked. That is, quality products were produced by the teams and will likely be adopted by other schools when a publisher is found.

From a more practical standpoint, however, other evaluative questions remain unanswered. Why do some of the personnel involved

express more enthusiasm, work beyond the call of duty, and always have their materials in on time? Why do others, receiving the same incentives, fail to meet deadlines, hand in unacceptable work, etc.?

These, of course, are questions that managers always want answered and which have been the subject of numerous studies in industrial psychology. At first we thought we might take measures on our participating teachers and administrators in an attempt to compare those who were enthusiastic and "cooperative" with those who were less so on factors such as adherence to time schedules, quality of work. etc. From a practical standpoint, however, the sample was too small to make such comparisons. There was also the very real possibility that the process might alienate some of the teachers.

We can, however, make a clinical judgement. Compared to previous projects, the curriculum development process seems about the same. The range of interest and motivation of participants was from "highly enthusiastic" to "not so cooperative." One team in particular was outstanding in terms of their willingness to give of their time and effort, individually and as a group. What then makes the difference between highly enthusiastic teachers and those who are not so enthusiastic, between teams that are very effective and those that are not? We need to know more about what motivates teachers to participate if we are to more effectively manage such projects. Moreover, we need to be able to identify the more "innovative" teachers and administrators so that we can better choose individuals and team members for future work. Recognizing these needs, we decided to study this area in more detail. The balance of this

chapter reports the results of the pilot study we conducted and our conclusions.

Purpose of Pilot Study

The purpose of this pilot study was to determine, within the context of the three major objectives of Project HIRE, the relationship between various incentives which may be used in any curriculum management system to encourage teachers to participate and the change orientation ("innovativeness") of teachers. Also of interest was determining subject area differences among teachers on preferred incentives/change orientation.

Method

Subjects were 96 teachers and ancillary personnel from a Northern New England high school interested in developing a two-year in-service program to enhance the school's vocational programs for handicapped students.

Demographic data on sex, subject area taught, degree level and age was collected. Teachers were also asked to indicate whether or not they had taken courses in special education. In addition, two instruments were administered to the teachers in cooperation with the school's curriculum planning committee. The Teacher Opinion Survey (Gardner & Cowan, 1979a) was used to determine preferred teacher incentives for participation in vocational curriculum development projects. Also, a modified form of a scale developed by Russell (1975) was used to measure the change-orientation of the school personnel in the study. The modified scale was designed to identify teachers and school personnel who would be more likely to

be innovative in working with handicapped youth (Gardner & Cowan, 1979b). Personnel administering the tests were given training by the authors and appropriate consent procedures were established by school officials.

Results

The mean age of the participating teachers was 36.1 years (s.d. = 9.8), median age 32, mode 30. Sex data was reported by 81 of the 96 respondents (30 females and 51 males). Of the 92 teachers reporting course data, 72 (78.3%) had never taken a course in special education. No significant sex differences were found on whether or not a teacher had had course work in special education. No significant differences were found on any of the measures by degree level.

PREFERRED INCENTIVE SCALES (Teacher Opinion Survey)

A pilot instrument was developed to determine patterns of teacher preferences for specific incentives to participate in curriculum projects. The instrument consists of 10 separate numerical rating scales (see following page). Each scale is equal interval appearing (Kerlinger, p. 546) and the range is from 1 = most important to 10 = least important. For each scale, teachers are asked to indicate the degree to which they feel the item is an incentive to participate in curriculum projects. For instance, one possible incentive for teachers to become involved would be "released time."

Test-retest reliability on the scale was found to be .98 (rho) (N = 51) with a one-week interval. The internal consistency coefficient (alpha) for the combined Preferred Incentive Scales on the Teacher Opinion Survey was found to be .91. Table 1 reports the means

TEACHER OPINION SURVEY

Teachers become involved in curriculum projects for varying reasons. The statements below represent some suggested reasons for teacher involvement. Please assign a score from 1 to 10 to each item by placing an "X" in the appropriate position on the scale. Assume that the distance between each score (e.g., the distance between 3 and 4) is equal. The best procedure for scoring the items is to begin with the item that you consider most important. Score this item "1". Next locate the least important item and score this item "10". Continue this procedure until a score is assigned to each item.

Example:

Most Important									Least Important
1	2	3	4	5	6	7	8	9	10

WHAT WOULD INFLUENCE YOUR DECISION?

	Most Important									Least Important
Released time.	1	2	3	4	5	6	7	8	9	10
Because asked by supervisor.	1	2	3	4	5	6	7	8	9	10
Conviction that the present curriculum needs changing.	1	2	3	4	5	6	7	8	9	10
Opportunity to learn from university specialists on project.	1	2	3	4	5	6	7	8	9	10
Opportunity to have input into curriculum.	1	2	3	4	5	6	7	8	9	10
Recognition, e.g., name or picture in newspaper or newsletter.	1	2	3	4	5	6	7	8	9	10
Recognition, e.g., authorship of curriculum products(s).	1	2	3	4	5	6	7	8	9	10
How much project will help own students	1	2	3	4	5	6	7	8	9	10
Amount of extra money for extra work.	1	2	3	4	5	6	7	8	9	10
Enjoy working with colleagues in small groups.	1	2	3	4	5	6	7	8	9	10

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NOTE: Permission to reprint the Teacher Opinion Scale will be granted to any investigator free of charge upon written request. The above copy does not contain the demographic data collection section.

TABLE 1

PREFERRED INCENTIVE SCALES*

Teacher Opinion Survey
(10 Incentive Scales) (N = 88)

	INCENTIVE ITEM	MEAN	S.D.	RANK
(a)	How much project will help own students	2.49	1.98	1
(b)	Conviction that curriculum needs changing	2.63	1.92	2
(c)	Opportunity to have input into curriculum	3.23	1.90	3
(d)	Opportunity to learn from university specialists	4.53	2.25	4
(e)	Enjoy working with colleagues in small groups	5.08	2.37	5
(f)	Released time	6.14	2.70	6
(g)	Because asked by supervisor	6.16	2.28	7
(h)	Amount of extra money for extra work	6.37	2.89	8
(i)	Recognition, e.g., authorship of curriculum product(s)	7.52	2.40	9
(j)	Recognition, e.g., name or picture in newspaper or newsletter	8.85	2.01	10

* 1 = Most important incentive
10 = Least important incentive

and standard deviations of the total group on the Preferred Incentive Scales. Each scale item is listed in rank order of the average preferred incentive of the total sample of teachers.

A one-way analysis of variance was computed for each preferred incentive scale item to test for differences between sexes and among subject area groupings. No significant differences were found by subject areas. There was no significant sex difference found on the ten incentive scales, with one exception. Females were significantly less motivated by incentive item (j) "Recognition, e.g., name or picture in newspaper or newsletter" than were males ($F = 3.997$, $p < .04$). However, this item was ranked very low by both groups.

Correlated *t* tests were used to compare each pair of possible combinations of the ten items. Only four of the *t* tests were significant. They are included in the following summary of item differences for the total group on average preferred incentives.

Summary of Findings on Preferred Incentive Items Ratings

1. The two most important incentives for the total sample were (a) "How much project will help own students" and (b) "Conviction that the curriculum needs changing." The mean ratings for these two items were not significantly different from one another.

2. The two highest ranked items (a and b) were rated significantly higher than the third most important item (c) "Opportunity to have input into the curriculum" ($p < .05$). The third most important item (c) was rated significantly higher than the fourth ranked item, (d) "Opportunity to learn from university specialists" ($p < .03$).

3. However, (d), the fourth most important item, did not differ from the fifth most important item (e) "Enjoy working with colleagues in small groups." Item (e) was rated significantly higher than the sixth ranked item, (f) "Released time" ($p < .01$). Item (f) was not rated significantly higher than the next two items, (g) "Because asked by supervisor" and (h) "Amount of money for extra work."

4. Item (h), "Amount of money for extra work," was rated significantly higher than the ninth ranked item, (i) "Recognition, e.g., authorship of curriculum product(s)" ($p < .01$).

5. The last two items (i and j) differed significantly from each other and from item (h).

6. It appears that on the average the total group prefers the following incentives in order to become involved in curriculum projects: (a) knowing that a project will be helpful to their students, and (b) holding the conviction that the curriculum is in need of change.

7. Conversely, the total group of teachers appears not to be motivated to become involved in curriculum projects by incentives which offer them "recognition" for their efforts.

CHANGE ORIENTATION SCALE

The twenty-item instrument used in this study is a modification of a twenty-one item instrument designed by Russell (1975) to measure:

> . . . the change orientation of teachers in order to identify potential innovators and to identify teachers who are most receptive to change. (p. 42)

The author reports a Kuder-Richardson Formula 8 reliability coefficient of .91. The 21 items were identified from a factor

analysis pool of over 2000 items. For construct validity the author reports that teachers who had high scores on this change orientation scale were less dogmatic, less conservative and more cosmopolitan in their points of view than low scorers.

The following modifications were made in the instrument to meet the needs of the proposed assessment for in-service training for mainstreaming handicapped students. On items 2 and 3 the word "handicapped" was substituted for the word "disadvantaged." The word "career" was placed in front of the word "vocational" on these same items. Item 13 was eliminated as unrelated to the purposes of the needs assessment and the planned purposes for using the instrument. Items 14 to 21 were renumbered, in sequence, as 13-20. In the newly-numbered items 15, 16, 17, 18 and 20, the word "interdisciplinary" was substituted for the word "differentiated." The original scaling format was changed from a range of 1 to 5 on each item to a range of 0 to 100 (on a one hundred millimeter line) using procedures suggested by Carifio (1976). Items 1, 2, 3, 4, 8, 10, 14, 15, 17, 18 and 20 are scored in reverse.

An internal consistency coefficient (alpha) was computed for the modified scale. The resulting coefficient ($r = .88$) was found to be consistent with that reported by Russell (1975) on the original scale ($r = .91$).

The minimum acceptable item/total score correlation for any single item on a 20-item test was found to be .22 (Guilford & Fruchter, 1978). Item/total test score correlations were computed for the modified scale and compared to the original item/total test

score correlations reported by Russell (1975). On the original scale, correlations ranged from .40 to .66. Item correlations with total score on the modified scale ranged from .26 to .72, and thus were judged to be acceptable. These correlations were consistent with the original scale statistics (see Table 2). A copy of the modified scale follows the Table.

TABLE 2

CHANGE ORIENTATION SCALE
Vocational/Career Education for Handicapped
Item/Total Score Correlations for Original Scale
(E.B. Russell, 1975) and Modified Scale

ITEM NUMBER Modified Scale	r	ITEM NUMBER Original Scale	r
1.	.26	1	.40
2.	.41	2	.56
3.	.37	3	.50
4.	.39	4	.61
5.	.33	5	.59
6.	.49	6	.61
7.	.60	7	.57
8.	.32	8	.59
9.	.43	9	.61
10.	.34	10	.55
11.	.47	11	.58
12.	.43	12	.63
13.	.58	14	.64
14.	.54	15	.56
15.	.56	16	.66
16.	.62	17	.60
17.	.55	18	.60
18.	.72	19	.64
19.	.66	20	.58
20.	.63	21	.61

NOTE: All correlations are significant at the $p < .05$ level.

Teaching Area_____

Grade_____

Code_____
Sex _____M _____F
Years Teaching_____
Highest Degree_____

VOCATIONAL/CAREER EDUCATION FOR HANDICAPPED

The following is a survey of your opinions regarding statements about vocational/career education for handicapped/special needs students. There are no right or wrong responses, so do not hesitate to mark the statements frankly. In answering each statement we want your personal opinion. We have tried to cover many differing and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others. Whether you agree or disagree with any statement, you can be sure that many other people feel the same as you do. Please be sure you DO NOT OMIT ANY STATEMENT. Please place a slash through the line at the right of each statement at the point which indicates the degree to which you agree/disagree with the statement (e.g., _____/_____).

	DISAGREE VERY MUCH		AGREE VERY MUCH
1. Schools can't do much to develop positive attitudes toward work.	0	50	100
2. We now have more vocational/career education programs than we need for the handicapped.	0	50	100
3. Vocational/career education can do little to alleviate the problems of handicapped people.	0	50	100
4. Students can benefit little from occupational education in the elementary grades.	0	50	100
5. I think there's no harm in starting occupational education in the elementary grades.	0	50	100
6. Early occupational education may stimulate a better attitude toward school work in later years.	0	50	100

	DISAGREE VERY MUCH		AGREE VERY MUCH
7. Vocational teachers can make a real contribution to occupational education at the elementary level.	0	50	100
8. There is no need in the elementary curriculum for the addition of occupational education.	0	50	100
9. I find that individualized instruction using behavioral objectives is valuable in helping the student succeed.	0	50	100
10. I believe it is more important to work with the entire class than to spend a lot of time with individuals.	0	50	100
11. I accept the idea that individualized instruction using behavioral objectives allows students to experience success more often.	0	50	100
12. I regularly use behavioral objectives with individualized learning experiences to help my students develop to their potential.	0	50	100
13. As part of a teaching team I could spend more time developing creativity, responsibility, and habits of inquiry in students.	0	50	100
14. I teach my classes without assistance and discourage others from helping.	0	50	100

	DISAGREE VERY MUCH		AGREE VERY MUCH
15. I would greatly dislike being a member of an interdisciplinary team.	0	50	100
16. I uphold the interdisciplinary team teaching concept as permitting a natural exchange of ideas.	0	50	100
17. I do not work well enough with others to make interdisciplinary team teaching work.	0	50	100
18. I'm convinced that interdisciplinary team teaching is a waste of time.	0	50	100
19. Use of interdisciplinary team teaching would allow me to put more varied content into my lessons.	0	50	100
20. I say that interdisciplinary team teaching is asking too much of established teachers.	0	50	100

No significant sex differences were found on the modified scale ($F = .13$, NS). A one-way analysis of variance by subject area taught yielded a significant F ($F = 3.215$, $p < .01$) for the main effect. Table 3 reports the means and standard deviations of the sample by subject area.

TABLE 3

Means and Standard Deviations by Teacher Subject Area on Change Orientation Scale

N = 78

Subject Area	N	Mean	S.D.	Rank
* Pupil Services	8	1639.38	203.03	1
Occ/Voc Ed.	20	1316.95	331.67	2
Science/Math	10	1309.60	235.24	3
Language Arts	18	1286.56	231.57	4
Social Studies	10	1239.80	177.17	5
** Other	12	1238.83	171.11	6

Scores may range from 0 to 2000. High score indicates "more change orientation."

* Guidance and special education personnel
** Physical education, driver education, art and music personnel

Subsequent Scheffé analyses found that the Pupil Personnel Services group was significantly more "change oriented" than all of the other groups. The mean of the Pupil Personnel Services group ranged from 322.42 to 400.54 points higher than all the other subject area groups.

No other significant differences were found, suggesting that the most "innovative" group was Pupil Personnel Services with other subject area groups scoring approximately the same on change orientation.

Preferred Incentives of Innovative Teachers

It was hypothesized that the "more innovative" teachers in the sample would differ significantly from the "less innovative" teachers on the items on the Teacher Opinion Survey chosen as important incentives. For the purposes of this study, the upper third of the total group on the change orientation scale were labeled the "innovators." Those scoring in the lower third of the scale were labeled "least innovative." These two groups were compared to each other on each of the ten incentive scales of the Teacher Opinion Survey using *t* tests for independent means. Significant differences were found on three of the ten incentive scales:

1. The innovators rated item (d) "Opportunity to learn from university specialists" significantly higher than did the least innovative teachers ($t = 3.24$, $p = .003$).

2. The innovative teachers were significantly more likely to rate item (e) "Enjoy working with colleagues in small groups" as a more important incentive than the least innovative teachers ($t = 2.26$, $p < .03$).

3. Lastly, the innovative group was more likely to give lower importance ratings to (h) "Amount of money for extra work" ($t = 3.51$, $p = .001$).

Discussion

Brolin (1976) points out that the development of individualized instructional materials

> . . . can be of extreme benefit to teachers and vocational personnel . . . (but) . . . Unfortunately, most individuals working in these programs have no extra time themselves to devote to materials development despite their recognition of the need for . . . (them). (p. 163)

Brolin's commentary underscores the basic motivational problem that grant directors, university faculty and other curriculum specialists encounter when seeking the cooperation of teachers in developing instructional packages (e.g. Gardner & Kurtz, 1977; Gardner & Cowan, 1978). Input from teachers in the field are essential to the curriculum development process. Yet, largely due to restrictive time factors, they may be unlikely to want to commit themselves to curriculum projects. Recognizing this factor, Project HIRE sought to develop a management system which would attend to the motivational needs of teachers. If teachers are pressed for time and reluctant to become involved, what then are the factors (incentives) which will motivate some of them to "work beyond the call of duty"? Moreover, what procedures can be used to identify the teachers who are more "innovative" or change-oriented and what incentives will encourage this desirable group to participate?

From the findings of this study, it appears that there are differential incentives which may attract the more innovative teachers to become involved. The innovative teachers in this study, compared to the less innovative ones, appear to be more motivated by opportunitites to learn new information from university specialists.

If one can assume (cautiously) that this sample is a typical one, the implications of this finding suggest that the design of curriculum projects should include a component in which teachers can be given opportunities to interact with university specialists. This may be an important incentive to attract the more innovative teacher.

Apparently the more innovative teachers are especially interested in working in small groups. Again, if one assumes cautiously that the teachers in this sample are typical, then this finding should also be considered in designing the management structure of a curriculum project. On this basis, it supports the importance of focusing on small, interdisciplinary teams to effectively develop specialized materials (Cowan, 1978). Moreover, this approach is consistent with the guidelines established by the Division of Vocational and Technical Education at the University of California at Los Angeles through work funded by the U.S. Office of Education. They point out that the

> . . . only curriculum a teacher is likely to take seriously is one he has helped to plan . . . (and that) . . . A team approach is often necessary in curriculum development. (p. 11)

Another important finding is the fact that the more innovative teachers seem to be less motivated by money than others. This finding is consistent with much previous work in organizational psychology. As Schein (1970) points out:

> . . . When an incentive scheme works, whether it is an individual or group incentive, it often works for reasons other than making more money. (p. 62)

While the issue of extra pay, of course, must be approached with caution, curriculum planners may wish to place less emphasis on the

fact of payment for participation and more emphasis on the professional rewards of involvement. The findings of this study suggest that an emphasis on such incentives as providing teachers with opportunities to work in small groups with university specialists and colleagues may be more motivating. In addition, teachers are more likely to cooperate if they are convinced that the curriculum needs modification and will help their own students.

The finding that the modified change orientation scale discriminates among groups of teachers also has important implications for curriculum planners. If the more change-oriented teachers are truly "innovators" as suggested by Russell (1975), then planners can use this tool to identify groups of individuals, such as the Pupil Personnel Service group in this study, to form a cadre of innovative project participants. Moreover, if management personnel can select the "opinion leaders" from this pool of innovative teachers, then the dissemination and adaptation of the curriculum modifications for mainstreaming can be more effectively expedited. As Schein (1970) points out in discussing the flow of communication in organizations, organizational research shows that the

> . . . influence on consumer beliefs and preferences does not result from direct exposure of the individual to relevant information . . . but rather from the exposure to "opinion leaders" . . . (p. 111)

In summary, the findings of this pilot study suggest that the problem of determining appropriate incentives to encourage teachers to give extra time to curriculum projects is a potentially manageable one. The Teacher Opinion Survey appears to be a reliable instrument for determining levels of preferred incentives for various groups of

teachers. The finding that the "money incentive" was a lower ranked preference for the innovative teachers contributes some validity to the scale as it is consistent with similar findings in organizational psychology. Thus, further study of the reliability, validity and utility of the instrument seems warranted.

The finding that the modified form of the change orientation scale does discriminate among groups on incentives is consistent with previous research on the original scale. Moreover, the modified form's reliability statistics in this study are also consistent with previous findings on the original scale. Further study of this modified form of the change orientation scale also seems warranted.

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CHAPTER 3

LEARNING PRINCIPLES: AN ECLECTIC MODEL

Background

Most vocational programs, while highly structured and skill-mastery oriented, make some basic assumptions about language acquisition. That is, no special emphasis is placed on the acquisition of the basic vocabulary of the particular trade. It is assumed that the student will "pick up" incidentally the technical language of the shop as he or she learns how to manipulate various tools and follow through on various processes. While this assumption is probably a good one for most vocational students, it is not necessarily a good one for learning handicapped students. According to Brolin (1976) ". . . incidental learning is a common problem . . ." (p. 160) for students who have difficulty in learning. In fact, there is considerable evidence that learning disabled and educable mentally retarded students do not acquire incidental learning at the same rate as their normal high school peers (Gardner, Warren and Gardner, 1977).

The phenomenon that handicapped and disadvantaged students do not learn incidentally as well as their normal peers can be explained by Rotter's Social Learning Theory (see Gardner & Beatty, in press). Handicapped students have been found to differ significantly from normal students on the personality variable locus of control, which has to do with attribution of reinforcements in relationship to personal inputs. Handicapped persons have more difficulty in attributing success or failure, rewards or punishments to their own environmental

inputs than do their normal peers. They do not see the connection between what they do and the rewards they receive. Instead they attribute rewards and reinforcements to luck, chance, fate or the whims of powerful others (Rotter, 1966). Persons who do not see the connection between rewards and personal inputs are said to have an external locus of control. Handicapped persons are more likely to have an external locus of control (Gardner & Gardner, 1974). Moreover, persons with an external locus of control are less likely to learn incidentally from their surroundings. The implications for work training are obvious (Gardner & Beatty, in press).

Recognizing this need, Project HIRE theorized that (1) handicapped vocational students would require additional instruction in technical vocabulary beyond the standard "incidental approach" and (2) instructional design should incorporate principles designed to give direct reinforcement for success (show the student the relationship between his own inputs and rewards.) In addition to taking into consideration the implications of learning theory derived from the work of J.B. Rotter (1954; 1966; 1975), Project HIRE also utilized well known and empirically based learning principles in the materials design, which are discussed later in this chapter.

Chapter Standard/Strategy Model

Standard	Strategy	Outcomes/Products
Use of learning theory and research findings as the basis for materials design.	University specialists analyze curriculum content, design basic teaching strategies and materials format in consultation with curriculum teams.	Field tested procedures and materials.

Procedures

In adherence to this standard, an effort was made to incorporate into the design of the materials the best in learning principles and recent practice available. The approach developed by Project VITA (Gardner & Kurtz, 1977) was used as the basic model as the materials from that project represented a recent successful model for working with a similar student population. Based on the work of Project VITA, the illustration of technical concepts with line drawings and the use of flash cards and tapes formed the basic design for the current project.

In addition to the empirically based design criteria of using line drawings as illustrations and on flashcards, the project also emphasized an eclectic learning principles model in designing the instructional packages. No attempt will be made here to discuss the extensive research literature in instructional psychology from which these principles were derived. Brolin (1976) and Gardner & Warren (1978) offer some excellent summaries of many of these learning principles as they are adapted for students with learning handicaps. Among the principles used:

1. Learning is faster if materials are meaningful to students.
2. Learning is maintained best if the material learned is used soon after it is first learned.
3. For acquiring facts, learning is faster and retention is improved if learning practice is distributed during the learning cycle (rather than crammed).
4. Clustering facts to be learned improves the student's ability to retain the facts.
5. Immediate feedback on the correctness of a response aids in the mastery of the new terms or facts.

6. Presenting materials in an easy-to-hard sequence improves learning speed.

7. Overlearning and reviewing facts helps retention.

8. If the student knows part of the task prior to attempting the entire task, he/she can learn better.

Evaluation and Discussion

Evaluation procedures for this particular strategy are synonymous with an evaluation of the materials themselves. The evaluation rests on the question of whether the materials did, in fact, accomplish what they were designed to do.

The evaluation section of Volume 1 of the final report is an answer to this question. The majority of the handicapped students in this project reached criterion (100% mastery of the terms) in one or two trials in all five trade areas. In addition, the handicapped group as a whole made significant gains in the number of words learned while the comparison group did not nor did a comparison student reach criterion.

Since this was a curriculum development project and not a research project, no attempt was made to test various subparts of the overall learning model to determine which specific learning principle or combination of learning principles was most efficacious. In a practical project like this one, such efforts would be pointless.

The implications of this approach are obvious. The application of well-known learning principles built around an empirically-based model (Gardner & Kurtz, 1979b) is an excellent way to ensure that instructional materials are well designed and effective.

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CHAPTER 4

DEVELOPING ENTRY-LEVEL VOCABULARY IN FIVE TRADE AREAS

Background

The basic idea for the materials developed by this project stemmed from a project directed by the senior author (Gardner & Kurtz, 1977). Project VITA developed training modules for teaching phototypesetting, an assessment procedures manual, and two "picture dictionary" modules for teaching a select list of graphic arts terms.

In the initial planning of the current project, the management team elected to follow an approach that was similar to the procedures used in Project VITA for the development of vocabulary lists. These procedures included soliciting from the vocational teachers words which were deemed essential to entry-level employment success in each specific trade. These lists were then discussed with the cooperating special education teacher to determine which words presented problems or might be expected to present problems to their students.

The selection of a trade area was based on the following:

1. One of the criteria for selecting a trade area was that it should have a good placement record in the participating school for special needs students.

2. Secondly, the vocational area should be one in which handicapped students had previously had difficulty.

In the early planning stages of the project, the initial list of standards/strategies for the paradigm included "selection of content"

as a strategy to be addressed. It seemed feasible and appropriate at that time to develop techniques to validate usage levels of the terminology selected as well as whether the term was "entry-level," even though these standards were not contained in the original request for funding. Eventually, time and money constraints dictated against completion of this plan.

Chapter Standards/Strategy Model

This chapter is concerned with the following standards/strategies:

Standard	Strategy	Outcome/Products
Selection of content to meet greatest need of students and job market.	Job prospects for students related to trade area selected for development. Teacher identification of student problem area.	Lists of terms related to trade areas with good or high employment potential. Job description list for teachers. Students with problems served.
Content related to entry-level jobs and frequency of usage.	Employer validation of terms for usage and as entry-level. Professional evaluation of vocabulary coverage.	Validated list of terms.

Procedures

The first standard/strategy above was developed *a priori*, as were the majority of those discussed in other chapters in this volume. That is, they were for the most part pre-determined in the original management plan of the project. The second standard/strategy was developed *post hoc*. In other words, we thought, after we had already chosen the words and begun development of the materials, that it would be a good idea to go beyond just the professional opinion of our own

teams and try to establish additional data on the usage of the terms and whether or not these terms were considered entry-level by employers. Unfortunately, budget and time restrictions did not permit us to go beyond the initial piloting of the procedures used to test the entry-levelness and usage levels of the terms.

The basic procedures used to implement the above standards strategies were as follows:

1. Teacher selection and teacher inputs into topics and word lists were made on the criteria that the topic area was one which could lead to jobs for the handicapped students and one in which students had previously had difficulty.

2. Professional ratings were made of the materials, including a rating on the extent of vocabulary coverage.

3. A survey instrument was developed to determine terminology usage levels.

4. A survey instrument was developed to determine whether or not employers felt that each term was necessary for entry-level job success.

The survey instruments and evaluation form are reported at the end of this chapter.

Evaluation and Discussion

1. Initial validation of topic areas and word lists.

Using the procedures established by Project VITA (Gardner & Kurtz, 1977), teachers and programs were selected on the basis of job prospects. (Other criteria are discussed in Chapter 2).. Thus, the initial selection of the five trade areas for the project lends

support to the notion of meeting the standard of good job prospects.

In addition, the subtopical areas were defined on the basis of perceived need for supporting learning handicapped students in the trade areas selected. Thus, on the face, it appears that this standard was validated by virtue of the initial management design.

2. Professional ratings of vocabulary coverage.

The intent of this procedure was to have materials rated by professionals in the field and to have them compare the materials to other course materials they have seen or used. Special education teachers, vocational teachers, administrators and other interested professionals were asked to rate the vocabulary coverage, the use of tapes, flash cards, clarity of the materials, etc. on a scale developed by the project (see Volume 1). The evaluation of this particular standard/strategy is concerned only with the ratings on vocabulary usage. For a complete report on the findings of the scale, the reader is referred to Volume 1 of this final report.

In terms of vocabulary coverage, the overwhelming majority of teachers rated the materials BETTER THAN all other materials they had seen or used ($p < .001$). In other words, the vocabulary coverage was considered to be superior by other professionals in the field. These ratings were obtained from participants in various workshops, conventions, and professional meetings from Maine to Florida (see Volume 1 for Dissemination). Thus, from the point of view of professional educators, the vocabulary appears to be significantly on target for entry-level vocational training.

3. Validation of terminology usage and entry-level categorization.

Two survey instruments were developed. The first instrument was designed to be sent to employers and other experts to establish the usage level of the term. The second instrument was designed to establish whether or not the terms were necessary for entry-level workers to know. Both surveys were not completed. Copies of the pilot instruments follow this discussion.

There were a number of factors which prevented the completion of this phase of the project. Both budget limitations and the corollary staff limitations contributed to the inability of the project staff to complete this piece of work. The idea for this attempt to validate the terms in this manner (as a cross validation of the procedures used above) occurred after funding and after the project was well underway. Consequently, the project was not equipped with budget or staff to expand its scope of adjunct research during the major curriculum development process. The work reported in Chapter 2, for instance, was also developed post hoc and was extremely time-consuming. The result was that this work is still incomplete but not unimportant for a project of this nature.

One of the major time-consuming factors which prevented completion was the problem in finding an appropriate sample for each of the five trade areas. For instance, many of the trade associations which the staff contacted during the period of sample list procurement would not sell or loan mailing lists. In fact, many of the trade associations were manned by part-time directors who simply did not carry sufficient authority. In one instance, one trade association let us survey six directors. In another instance, the trade association was for large

manufacturers and the school training program for which the materials were designed was for small job-shops. This required our research assistant to actually visit, in person, small owner-operated establishments in order to get respondents. Consequently, this was a local sample.

In summary, to gather appropriate samples for this survey would have meant a considerable investment in personpower and funds which the project simply could not afford.

Moreover, in examining the few returns we received from culinary arts and upholstery employers, we found the responses to be considerably variable, well beyond any expected variance. There are numerous explanations for this fact. It is highly likely that part of the problem was inconsistent sampling across a broad range of educational levels and ability. It is also highly probable that both of these pilot instruments will require several pilot tests before final revisions of the instrument can be considered reliable and valid.

In spite of our own management problems, budget problems, etc., we feel that this approach is a most worthwhile one and that had we been able to accomplish this portion of adjunct research, the validation of our list of terms would have been considerably strengthened.

In closing, we offer some suggestions for improving the survey design model that we initiated:

1. The instruments can probably be combined to "kill two birds with one stone."

2. The list of words could be randomly assigned into smaller lists which could then be randomly assigned to subsamples (matrix sampling). This would cut down on the work for each rater and probably would increase return rates.

3. An adequate telephone/staff/printing budget would have to be in place.

According to Dewey (1979), the following items are important considerations in designing a survey:

1. . . . "the shorter the questionnaire, the higher the return rate." (p. 17)

2. . . . "endorsements signed by prominent individuals . . . may increase return rate." (p. 17)

3. . . . "simplify the wording of the questions." (p. 18)

4. Conduct a "pilot study to determine test-retest reliability . . . and to gain feedback on possible ambiguities of items." (p. 18)

5. Improve on the questionnaire format. Dewey (1979) recommends the contingency format of questionnaire design which can . . . "facilitate the respondents' tasks in answering the questionnaire and can also improve the quality of the data produced." (p. 19)

6. Appearance. As Dewey points out: "Ideally, a professionally printed questionnaire is most effective in increasing response rate." (pp. 19-20)

7. Color. "Yellow paper . . . had the highest percentage of returns." (p. 20)

These and other suggestions, succinctly summarized by Dewey (1979), should be incorporated into the development of an effective survey procedure which will yield useful data for terminology validation. Some of the suggestions made by Dewey were used. Others were not due to budget and staff restrictions. The reader who is interested in pursuing this approach will find Dewey's discussion most helpful. He also cites a number of helpful sources for information on survey design.

EMPLOYER'S
ENTRY-LEVEL JOB VOCABULARY SURVEY

46

Code _____

Name _____ Title _____

Company _____ Type of Business _____

Address _____ Date _____

_____

DIRECTIONS: Just below this paragraph is a list of entry-level jobs in your business or industry. At the bottom of the page is a list of terms. If you feel that it is necessary for a "beginning" worker to know the meaning of a particular term listed at the bottom of the page, check "YES". If you feel that it is not necessary for the beginning worker to know the meaning of that particular term, check "NO". Your YES or NO decision should be made on the basis of the importance of the term for job performance in one or more entry-level jobs listed below. A description of the entry-level jobs is enclosed.

LIST OF ENTRY-LEVEL JOBS

Counter Attendant
Baker's Helper
Cook's Helper
Waiter/Waitress
Cook's Apprentice
Pastry Cook's Apprentice

For each term, decide whether it is necessary for the beginning worker to know that term in order to function effectively in one or more of the jobs listed above.

TERM	Entry-level vocabulary? YES	NO	TERM	Entry-level vocabulary? YES	NO
a la mode			baked alaska		
ambrosia			baste		
arrowroot			batter		
as purchased (A.P.)			bechamel sauce		
baba au rhum			bench brush		
bake pan			bisque		
baker's scale			blanch		

For each term, decide whether it is necessary for the beginning worker to know that term in order to function effectively in one or more of the jobs listed above.

TERM	Entry-level vocabulary? YES	NO	TERM	Entry-level vocabulary? YES	NO
blend			convection oven		
bombe			conventional oven		
boning knife			crepe		
bouillabaisse			deep fat fryer		
bouillon			deep fat frying		
box grater			deglaze		
braise			deviled		
broche			dice		
broth			double boiler		
Brown Betty			dough cutter		
bunch (bch.)			dress		
butcher's knife			drippings		
cacciatore			duchess potatoes		
candy			dust		
caper			eclair		
celcius (C)			Egg wash		
chick peas			Eggs Benedict		
china cap			emulsify		
chop			en brochette		
clarify			escarole		
coat or dredge			espagnole sauce		
coddle or poach			farenheit (F)		
colander			filet		
consomme			filet mignon		

For each term, decide whether it is necessary for the beginning worker to know that term in order to function effectively in one or more of the jobs listed above.

TERM	Entry-level vocabulary? YES	NO	TERM	Entry-level vocabulary? YES	NO
flambe			Indian pudding		
flapjacks			ingredient		
flat spatula			Irish stew		
florentine			iron skillet		
flour sifter			julienne		
fluff			kitchen fork		
fold			knead		
food tongs			level		
french knife			lyonnaise		
french toast			marinade		
french wire whip			measure		
fricassee			measuring cup set		
fritters			meringue		
fumet			microwave oven		
gallon (gal.)			mince		
giblet			mirepoix		
glaze			mixing machine		
grate			O'Brien		
grill			offset spatula		
gumbo			ounce (oz.)		
hand meat tenderizer			pack		
hollandaise sauce			paring knife		
hominy			pastry bag		
hotcake or meat turner			pastry brush		

For each term, decide whether it is necessary for the beginning worker to know that term in order to function effectively in one or more of the jobs listed above.

TERM	Entry-level vocabulary? YES	NO	TERM	Entry-level vocabulary? YES	NO
pastry tubes			shred		
perforated ladle			sieve		
perforated spoon			sift		
piano wire whip			simmer		
pie & cake marker			skewer		
pint (pt.)			skimmer		
pound (lb.)			slice		
quart (qt.)			slicing machine		
rasher			solid ladle		
reach-in refrigerator			solid spoon		
rice			spit		
rissoled			steam		
rolling pin			steam table		
roux			stock		
sauce pan			stock pot		
sauce pot			strain		
saute			strainer		
saute pan			suet		
scald			tablespoon (T)		
scoop			teaspoon (t)		
score			tilt fryer		
sear			tomate sauce		
shallot			truss		
shirred eggs			velvoute sauce		

For each term, decide whether it is necessary for the beginning worker to know that term in order to function effectively in one or more of the jobs listed above.

TERM	Entry-level vocabulary? YES	NO	TERM	Entry-level vocabulary? YES	NO
walk-in refrigerator					
white wash					
zest					

DIRECTIONS:

The Vocabulary terms listed below are currently under consideration for use in the Project HIRE curriculum project. These terms will be used in preparing curriculum materials for students with learning problems who are currently enrolled in public school vocational training programs. Please rate each term by checking the column indicating the frequency of use. Use your best professional judgement. If you are not certain, please make your best guess. Regardless of the rating you give any specific term, if you think there is another term with the same meaning which is more frequently used nationally, please write it in the space indicated. Do not list substitutes which are used infrequently on a national level.

EXPLANATION OF RATINGS

RATING	DESCRIPTION
HIGH USAGE	Part of the basic industry vocabulary and an understanding of its meaning (or the use of the tool, item or material it represents) is essential for adequate functioning in an entry level job in this industry.
MODERATE USAGE	Part of the basic industry vocabulary but an understanding of its meaning (or the use of the tool, item or materials it represents) while helpful on the job, is not essential unless the employee holds a specific job responsibility which requires this knowledge.
INFREQUENT USAGE	Used by a small proportion of the personnel in this industry. An understanding of the meaning of this word (or the use of the tool, item or materials it represents) is not essential for the majority of workers in this industry.
RARE OR OBSOLETE TERM	Rarely or never used today.

If you have any questions on how to rate the words, please call Mrs. Joely Cowan or Dr. David Gardner at 617-353-3458.

Vocabulary Rating Sheet for _____

Evaluator's Name _____ Date _____

Word	Usage Rating				Synonym Used More Frequently Nationally (if any)
	High	Moderate	Infrequent	Obsolete	

References for Chapter 4

Dewey, B. E., Jr. Factors affecting initial employment in special education. Unpublished doctoral dissertation, Boston University, 1979.

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CHAPTER 5

UNIVERSITY SUPPORT SYSTEM: INTERDISCIPLINARY TEAMS AS A FRAMEWORK FOR CHANGE

Background

Project HIRE's curriculum management system, with its emphasis on product development, probably can be best described as an eclectic management model. The major goal of the project was the development of quality curriculum materials which would help support a legal mandate to change an educational system. Prior to the enactment of PL94-142, handicapped learners were by and large excluded from participation in regular vocational programs.

If one views the development of the Project HIRE materials as a major strategy for helping to institutionalize permanent change in the way handicapped students are educated, then it seems appropriate to compare the HIRE approach to three well known models for the management of change. According to Bolam (1975) ". . . most changes in education take place in an organizational context" (p. 275). The typology offered by Bennis, Benne and Chin (1969) is used by Bolam to categorize major change agent strategies. He points out that while these typologies ". . . are helpful for purposes of analysis . . ." (p. 277), they usually do not exist in a pure form and are probably arbitrary.

One important characteristic of change agents that might be attended to is the type of authority relationship (Bolam, 1975). It may be founded on professional colleagueship, external consultancy or

administrative status. Project HIRE's curriculum development model can be viewed as containing elements of all three of these authority relationships. They can best be illustrated as a combination of the three typologies suggested by Bennis, Benne and Chin (1969). These typologies are paraphrased in Figure 3 and compared to the actual approaches of the project's management system.

CHANGE TYPOLOGY*	HIRE APPROACH
EMPIRICAL RATIONAL STRATEGIES Assumes men are reasonable and will respond best to rational explanation and demonstration.	Project emphasis on seeking participants who want to get involved and help improve training programs. Focus on explanation of approach and feedback on progress, etc.
NORMATIVE RE-EDUCATIVE STRATEGIES Assumes that effective change involves a change of attitudes, values, skills, etc. Typically involves a consultant/change agent who works in cooperation with schools.	Project staff from university serve as consultants to schools and teams. Project dissemination focuses on re-education of teachers/administrators not involved in materials development.
POWER-COERCIVE STRATEGIES Depends upon access to legal or administrative power.	While there are certain elements in the HIRE approach that involved these strategies (e.g. Federal incentives, use of administrators on teams), the emphasis was on the above two strategies.

FIGURE 3

HIRE ECLECTIC CHANGE MODEL

* See Bennis, Benne and Chin (1969).

Within this framework for change, Project HIRE's management system involved the use of interdisciplinary teams composed of university

specialists (consultants), school administrators (authority personnel) and teachers (identified as innovative). All were concerned with meeting the vocational education needs of handicapped learners. These teams were supported by a university-based support system.

Chapter Standard/Strategies Model

Standard	Strategy	Outcomes/Products
Interdisciplinary curriculum development approach. Both special education and vocational education instructors provide input into curricular planning.	Small, in-school team approach.	Instructional materials for use in vocational support system in resource-room or special sessions with regular teachers. Increased interdisciplinary cooperation.
University management and coordination of interdisciplinary teams in the curriculum development process.	Project activities coordinated by university staff; i.e. planning evaluation, design and implementation, data analysis, final product writing, etc. Verified at school level.	Quarterly Reports Annual Report Final Report Product Evaluation Curriculum Products Dissemination

Procedures

According to Likert (1969):

> . . . the greatest use of human capacity consists of highly effective work groups linked together in an overlapping pattern by other similarly effective groups (p. 356).

Likert's point succinctly describes the practical approach to curriculum development used by the project. That is, it established a series of small teams or groups dedicated to the same goals, producing quality curriculum products for use in vocational schools. It

linked them together through a university support system coupled with in-school supervisory support and cooperation. This approach was based on practical experience gained in previous projects (e.g. Gardner & Kurtz, 1977) and on the fact that there is evidence that teachers are more likely to value working with supervisors and consultants in task-oriented situations (Tanner & Tanner, 1975, p. 631).

Evaluation and Discussion

It was obvious from the findings reported in Chapter 2 of this report that teachers who are innovative and interested in effecting changes in the curriculum for the benefit of handicapped students prefer to work in small groups or teams. Moreover, since teachers and school administrators rarely feel that they have the time or expertise to become involved in curriculum development changes of the nature of this project, the university/school team approach seems to be a viable alternative to other approaches. Moreover, the advantages of an interschool/university project are obvious. The scope of the project can be broader and the potential for adaptation of the resulting products to meet the needs of the larger student population greater. In sum, on a rational-empirical basis, the interdisciplinary team/university model seems to be a viable one for developing materials which enhance the mainstreaming process for learning handicapped students in occupational programs. Moreover, the empirical-rational approach ". . . has perhaps been the major approach to curriculum development in this country . . ." (Hoyle, 1977, p. 534).

To summarize our clinical interpretation of how the small, in-school, product-oriented team approach works best, we refer the

reader to some of the principles of participation cited by Doll (1978, pp. 325-326):

- Teacher participation should be used in every phase of the project.
- Teachers must work cooperatively within a climate of permissiveness, equality, and realization of personal worth.
- Teachers should be granted time, money and facilities.
- Teachers should involve themselves in limited programs . . .
- Teachers should attend to specific goals and to useful materials, content and methods.
- Teachers should use a variety of consultant and resource personnel.
- Teachers should have a coordinating body . . . to centralize their work.

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